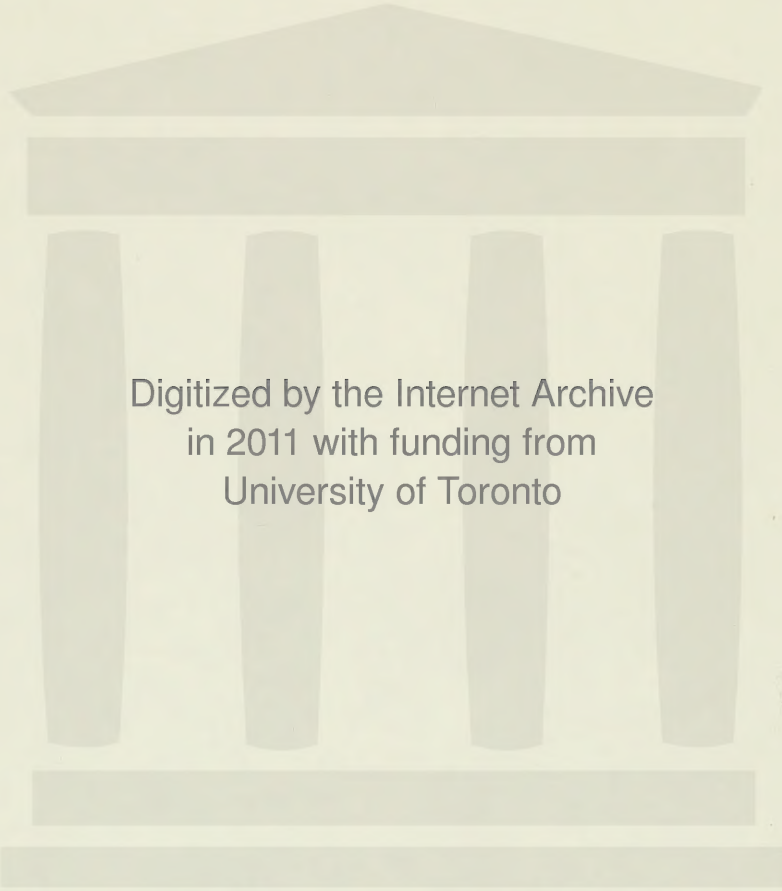




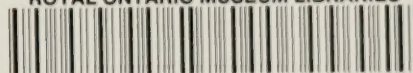
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No. 47

THE CADDISFLY GENUS *OLIGOTRICHIA* IN JAPAN WITH
THE DESCRIPTION OF A NEW SPECIES.
(TRICHOPTERA: PHRYGANEIDAE)

By

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THE CADDISFLY GENUS *OLIGOTRICH*A IN JAPAN WITH
THE DESCRIPTION OF A NEW SPECIES.
(TRICHOPTERA: PHRYGANEIDAE)

By GLENN B. WIGGINS¹ and SATORU KUWAYAMA²

CONCEPTS of the genus *Neuronia* s. l., traditionally of the caddisfly family Phryganeidae, have been changing as workers have become more familiar with the world fauna of this family. Of the more modern treatments based on analysis of the world fauna, Martynov (1924) was the first to reduce this heterogeneous group to several separate genera, basing the divisions largely on genitalic characters. Martynov retained, however, as one genus, *Neuronia* s.s. in which he placed two species, *lapponica* Hagen and *ruficrus* Scopoli. Milne (1934) stated that *Neuronia* was actually a name pertaining to the Plecoptera and he resurrected Rambur's (1842) name *Oligotricha* to replace *Neuronia* s.s., designating as the type species *Oligotricha chloroneura* Rambur (= *Phryganea ruficrus* Scopoli). Kimmins (1952) has recently shown that the name *Neuronia* must be applied to Lepidoptera.

Recent studies of the phryganeid caddisflies by the senior author have confirmed that Martynov's concept of this genus was correct, but not having Japanese material of this group, Martynov was unable to add to the number of species included. Having now examined some Japanese phryganeid material, we believe that two species of *Oligotricha* are present in Japan, making a total of four species in the genus.

The purpose of this paper is therefore to clarify the position of the genus *Oligotricha* in Japan. One species is described as new and a second species is redescribed and assigned to this genus for the first time. One species name is placed in synonymy.

The genitalic structures of both males and females of *Oligotricha* are clearly variations upon basic plans both of which are distinct from those of all other known phryganeids. For the males the simple tenth tergum, the two-segmented inferior appendage with the dentate basal segment, and the long, curved terminal segment, and the sclerotized phallus with its peculiar encrusted invaginated parts are collectively diagnostic for the genus. For the females the hairy, paired processes terminating the subgenital plate and the internal genitalia with the median sclerotized crest on the ventral wall of the genital chamber

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are also diagnostic for the group. A complete definition of *Oligotricha* and all other known phryganeid genera will follow as part of a revisional study of the Phryganeidae now in preparation by the senior author.

***Oligotricha spicata* species nova**

ADULTS. Length of fore wing: male 11–18 mm.; female 15–21 mm. Fore wings with base colour golden brown, rather uniformly covered with darker brown reticulations. Hind wings lightly shaded with golden brown, with very faint brown markings along the apical margin; a conspicuous brown spot on R_1 toward the apex. The brown reticulations and the golden brown background are, in general, a little lighter in the smaller specimens examined than in the larger ones. Femora, tibiae and tarsi of all legs golden brown compared to the very dark brown of the basal leg segments and the rest of the body.

Male terminalia (Fig. 1). Basal segment of inferior appendage with a stout process arising from the ventromesal surface near the apex, appearing in lateral view as a straight spike; in caudal view this spike is slightly curved and directed ventromesad; basal segment rather broad laterally with the posteroventral edge strongly produced as a prominent toothed ledge; dorsomedian edge of basal segment with prominent irregular emargination in caudal view. Terminal segment of the inferior appendage slightly curved and rather short and stout. Tenth segment broadly triangular, with lateral margins swollen in dorsal view. Phallus with a broad, ventral subapical point.

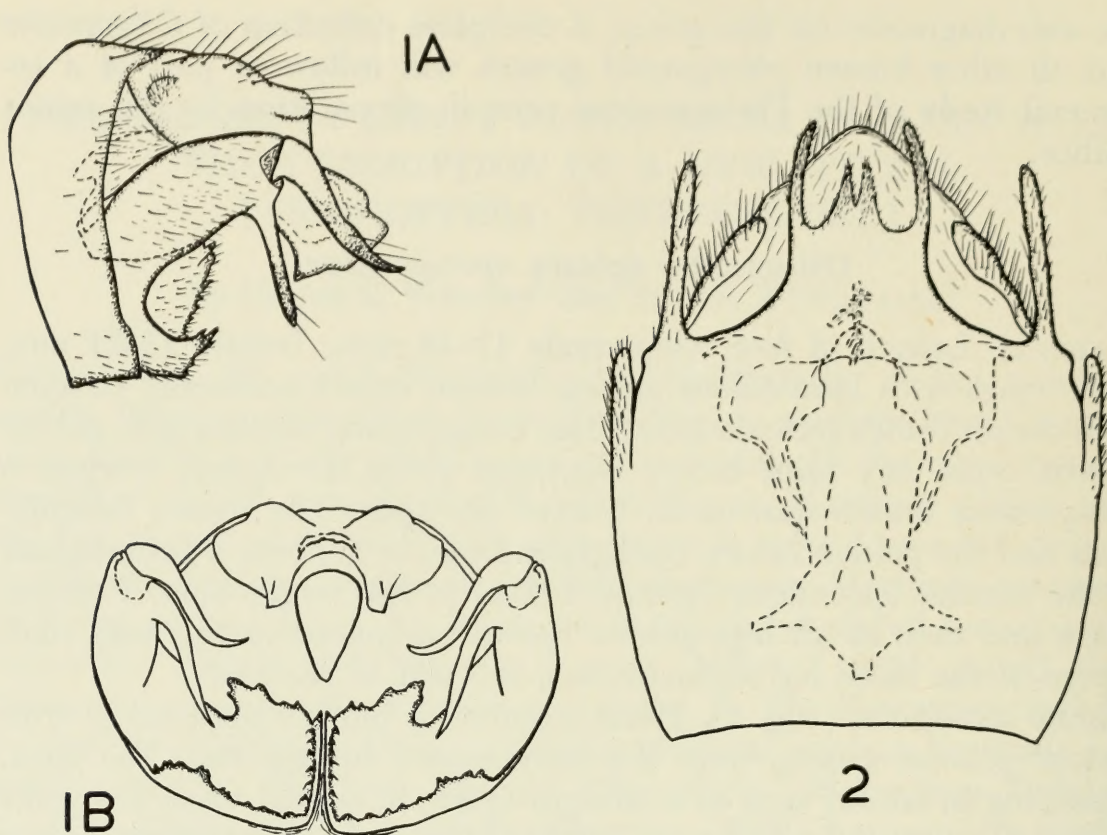
Female terminalia (Fig. 2). Subgenital plate terminates laterally with a pair of long, slender processes; mesally the plate narrows and extends posteriorly for some distance before dividing into a pair of thin lateral processes and a mesal triangular piece which is again divided into two hairy points by a narrow notch. The internal genital structures are diagnostic for this species.

Holotype, male: Urahiuti, Oze, 40 km. northwest of Nikko, Honshu, Japan; July 10, 1951; in alcohol; S. Asahina.

Allotype, female: Shiga-Kogen, 30 km. northeast of Nagano City, Honshu, Japan; July 9, 1955; pinned; S. Asahina.

Paratypes: Shiga-Kogen, Honshu, Japan: 1 ♂, pinned, July 13, 1955; 1 ♀, pinned, July 18, 1955; S. Asahina.

All of the above specimens are deposited in the Department of Invertebrate Zoology, Royal Ontario Museum. The following paratypes are deposited in the collections of Dr. Syoziro Asahina, Tokyo, Japan, and of the Hokkaido National Agricultural Experiment Station,



Oligotricha spicata sp. nov.

FIG. 1, Terminal abdominal segments of male; 1A, lateral view; 1B, caudal view.

FIG. 2, Terminal abdominal segments of female, ventral view.

Sapporo, Japan. All specimens were collected by Dr. Asahina and are either pinned or in paper envelopes.

Paratypes: Shiga-Kogen, Honshu, Japan: 1 ♀, June 8, 1955; 1 ♂, June 17, 1955. Oze, Honshu, Japan: 1 ♀, July 16, 1935; 2 ♂ ♂, 2 ♀ ♀, July 17, 1937; 1 ♂, July 6, 1951; 1 ♀, July 7, 1951; 2 ♂ ♂, July 9, 1951.

The name *spicata* given to this species is in accord with the conspicuous array of spike-like processes in the external genital structure of both male and female.

***Oligotricha fluvipes* (Matsumura) new combination**

Neuronia fluvipes Matsumura, 1904, p. 172; Pl. XII, fig. 12; Holotype ♀; Kyoto, Honshu, Japan; Hokkaido University Collection.

Oligostomis hirayamae Matsumura, 1931, p. 1121, fig.; Holotype ♀; Tokyo, Honshu, Japan; Hokkaido University Collection. NEW SYNONYMY.

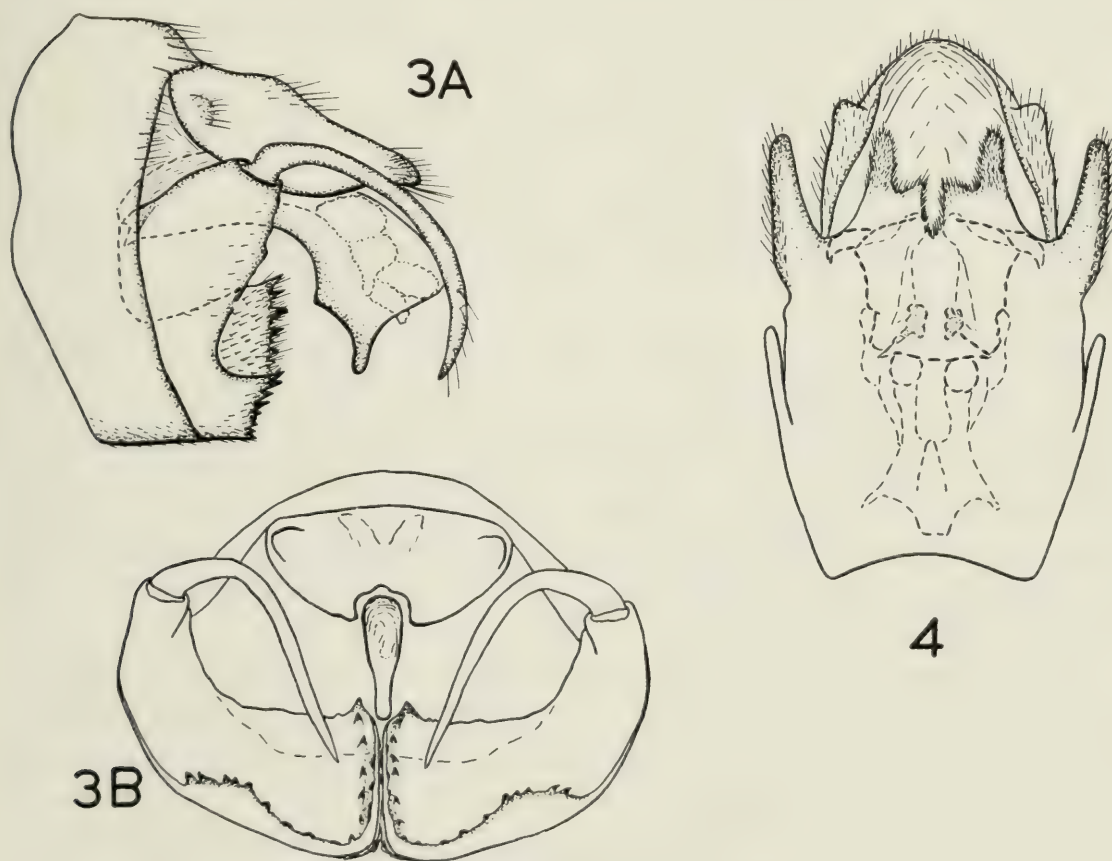
Neuronia (*Oligostomis*) *fluvipes* Tsuda, 1942, p. 306.

ADULTS. Length of fore wing: male 15–18 mm.; female 18–21 mm. Fore wings with base colour very light brown, not the rich, golden brown of *spicata*; fore wings uniformly covered with darker brown reticulations, but usually not as dark as in *spicata*; the contrast

between the base colour and the reticulate pattern usually weaker than in *spicata*. Hind wings light brown, without a darker reticulate pattern apically, and only a diffuse brown spot on R_1 toward the apex. Middle and hind tibiae and tarsi light brown compared to the darker brown of the other leg segments and of the body.

Male terminalia (Fig. 3). Basal segment of inferior appendage without a process; posteroventral edge of basal segment produced as a sharp ledge in lateral view. Sickle-shaped terminal segment arises from the apex of the basal segment. Tenth segment triangular but without strongly swollen lateral margins in dorsal view. Phallus terminates ventrally with a rounded lobe apically and a broad point subapically.

Female terminalia (Fig. 4). Subgenital plate terminates laterally with a pair of stout processes; mesally the subgenital plate terminates with two thinner hairy processes, each having a prominent mesal notch. In the specimens examined the internal genital structures were rather variable in minute detail, particularly in the heavily sclerotized median crest. This crest was seen as a small simple lobe, as two separate irregular lobes, and as a long irregular median crest with two small portions at the anterior end. In all of these specimens the general form of the other internal and external structures showed no marked dis-



Oligotricha fluvipes (Matsumura)

FIG. 3, Terminal abdominal segments of male; 3A, lateral view; 3B, caudal view.

FIG. 4, Terminal abdominal segments of female, ventral view.

cordance from that shown in Figure 4. Because of the overall agreement in basic genital structure in the females, and because variations have not been found in the male genitalia, we are assigning all of these variants to *fluvipes*.

The female terminalia of Matsumura's holotype of *fluvipes* were examined. In this specimen the median apical processes of the subgenital plate are more slender than shown in Figure 4 and the median notches are not as deep. The internal structures are very similar to those in Figure 4.

The terminalia of the female holotype of *hirayamae* Matsumura have also been examined. These differ only slightly from *fluvipes* in certain internal structures, the most marked being the median sclerotized crest on the ventral wall of the genital chamber. Since it is clear that this crest is variable in *fluvipes* anyway, we are placing *hirayamae* as a synonym of *fluvipes*. The processes at the apex of the subgenital plate were damaged in the holotype of *hirayamae* but those parts remaining gave no indication of a structure different from that of *fluvipes*. The fore wings of the holotype of *fluvipes* have somewhat wider reticulations than the fore wings of the holotype of *hirayamae*, but since the colour of the fore wings is more variable in other material considered as *fluvipes*, this difference is not taken to be significant. Furthermore, variation in the colour pattern of the fore wings is characteristic of this genus.

RANGE. This species is known only from Honshu Island, Japan.

Neuronina childreni Betten and Mosely (1940) was recently transferred to *Oligotricha* (Wiggins, 1956) on the basis of the genital structure and the wing venation of the holotype female. At our request, the holotype, which is in the British Museum, was compared with female specimens of *O. lapponica* by Mr. D. E. Kimmins, who reports that there are no significant structural differences between *childreni* and *lapponica*. We designate, therefore, *Neuronina childreni* Betten and Mosely as a synonym of *Oligotricha lapponica* (Hagen). The name *childreni* was based on a single specimen separated from Walker's original series of *Banksiola concatenata* by Betten and Mosely. The specimen bore no geographic designation and in the past its status has always been in doubt.

Milne (1934) presented a classification of the Phryganeidae, including in *Oligotricha* the Chinese species *Neuronina soochowica* Ulmer. Dr. Ulmer has kindly loaned specimens of *soochowica* and this species does not fit in *Oligotricha*.

Iwata (1927) described two phryganeid species from Japan, *Neuronina kawamurai* and *Neuronina maxima*, based on the larvae alone. The validity of these species is doubtful especially since Iwata did not state that the larvae designated as new species could not be associated with known phryganeid species in Japan. There remains,

however, the possibility that when more is known of the phryganeid larvae of Japan, one of Iwata's names will take precedence over the new name proposed in the present paper.

Oligotricha thus emerges as a genus of four known species. These are:

O. ruficrus (Scopoli)—northern and central Europe.

O. lapponica (Hagen)—northern Europe and Asia; Alaska.

O. fluvipes (Matsumura)—Honshu Island, Japan.

O. spicata Wiggins and Kuwayama—Honshu Island, Japan.

DIAGNOSIS. The dark brown wings of *ruficrus* are in most cases sufficient to separate this species from all others in the genus. The fore wings of *fluvipes* and *spicata* and usually of *lapponica* have a reticulate pattern of dark brown on a lighter background. The male of *fluvipes* is unique in not having a long process on the basal segment of the inferior appendage. Males of both *spicata* and *lapponica* have a process on the basal segment of the inferior appendage; in *lapponica* the inferior appendage is more vertical and narrow laterally without a strongly produced ledge along the posteroventral edge; in *spicata* the inferior appendage is more oblique and broader laterally and the posteroventral edge is strongly produced as a ledge.

The female of *spicata* can be most readily distinguished from females of all other species of *Oligotricha* by the thin, elongate lateral processes of the subgenital plate and by the median projection of the subgenital plate which terminates in four points. The female of *fluvipes* has two stout lateral processes terminating the subgenital plate which are as long or longer than the two mesal processes. In *lapponica* the two lateral processes are more like small knobs and are shorter than the two mesal processes. The females of all four species differ in internal genital structure.

A variety of *lapponica* is known from Swedish Lappland (Forsslund, 1933) in which the wings are almost uniformly dark brown, with a few small light spots. Any uncertainty in placing specimens with more or less uniform brown wings as either *ruficrus* or *lapponica* can be resolved by means of the genital structures. In lateral view the male of *ruficrus* has the posteroventral edge of the inferior appendage produced as a sharp ledge, much as in *fluvipes*. The male of *lapponica*, as described above, has no such prominent ledge in lateral view. The subgenital plate of the female of *ruficrus* terminates in four stout processes of equal length and between the two mesal processes is a small pair of hairy points. The subgenital plate of the *lapponica* female, as outlined above, terminates in four smaller unequal processes.

ACKNOWLEDGEMENTS

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of those in charge of the insect collection of Hokkaido University in loaning Professor Matsumura's type specimens is acknowledged. Professor Matsunae Tsuda, of Nara Women's University, kindly contributed specimens. Information regarding the holotype of *Neuronia childreni* was obtained through the co-operation of Mr. D. E. Kimmins of the British Museum (Natural History).

LITERATURE CITED

BETTEN, CORNELIUS, AND MARTIN E. MOSELY

1940. The Francis Walker types of Trichoptera in the British Museum. Brit. Mus. (Nat. Hist.), London, pp. 1-248, 122 figs.

FORSSLUND, K. H.

1933. Eine neue melanistische *Neuronia*—Varietät. Ent. Tidskr., vol. 53, p. 53.

IWATA, MASATOSHI

1927. Trichopterous larvae from Japan. Annot. Zool. Jap., vol. 11, no. 3, pp. 203-233, 2 text-figs., 7 pls.

KIMMINS, D. E.

1952. *Agrypnetes crassicornis* McLachlan (Fam. Phryganeidae), a caddis fly new to Britain. Ann. Mag. Nat. Hist., vol. 5, series 12, pp. 1039-43, 3 figs.

MARTYNOV, ANDREAS V.

1924. Preliminary revision of the family Phryganeidae, its classification and evolution. Ann. Mag. Nat. Hist., vol. 14, ser. 9, pp. 209-224, 2 figs.

MATSUMURA, SHONEN

1904. Nippon Senchu Zukai (Thousand insects of Japan), 1. 2+213+4 pp., 23 figs., 17 pls. Tokyo.

1931. Nippon Konchu Daizukan (6000 illustrated insects of the Japanese Empire). 29+1497+191 pp., 10 pls. Tokyo.

MILNE, LORUS J.

1934. Studies in North American Trichoptera, Pt. 1. 1-19 pp. Cambridge, Mass.

RAMBUR, J. PIERRE

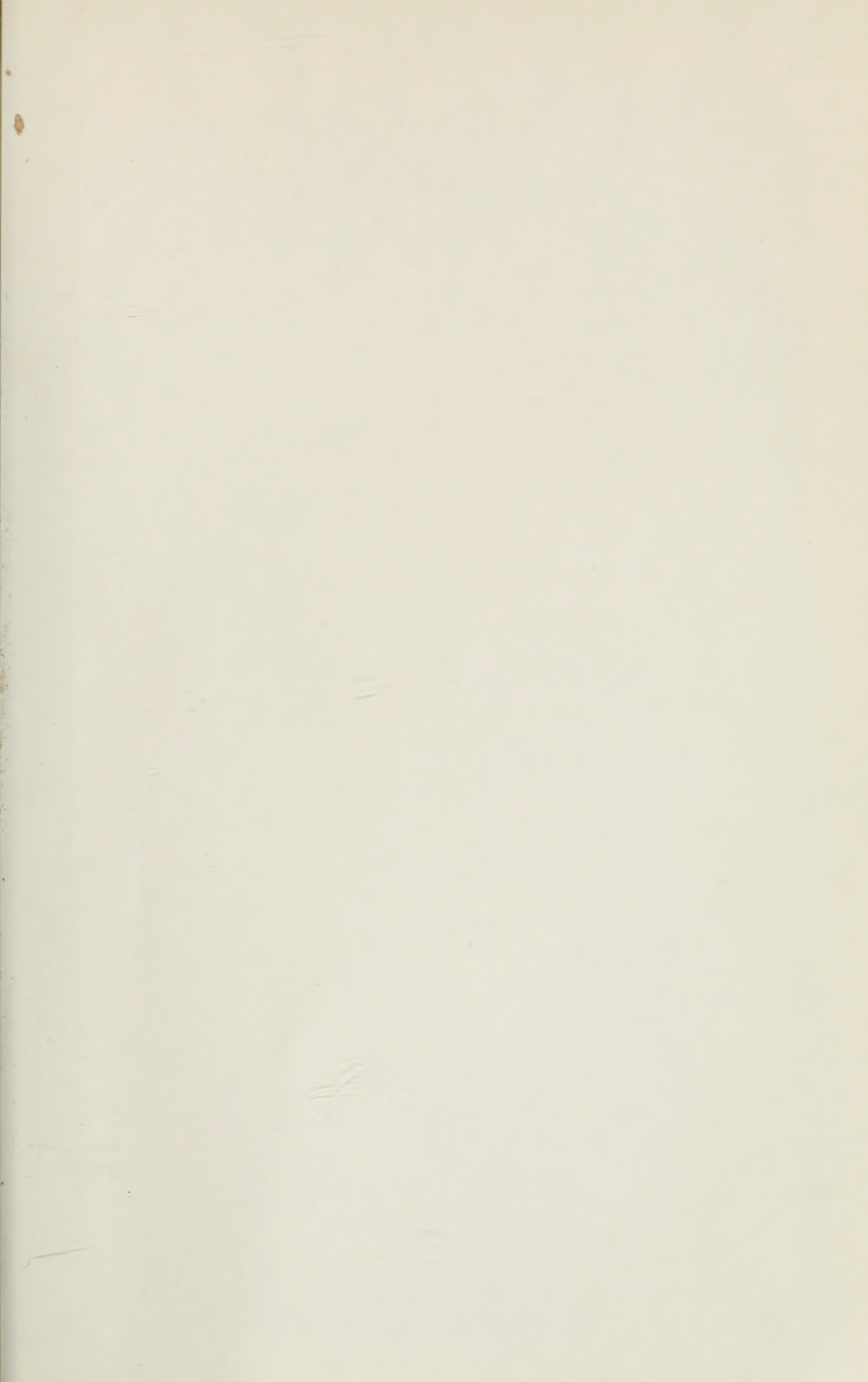
1842. Histoire naturelle des insectes. Nevroptères. 17+534 pp., 12 pls. Paris.

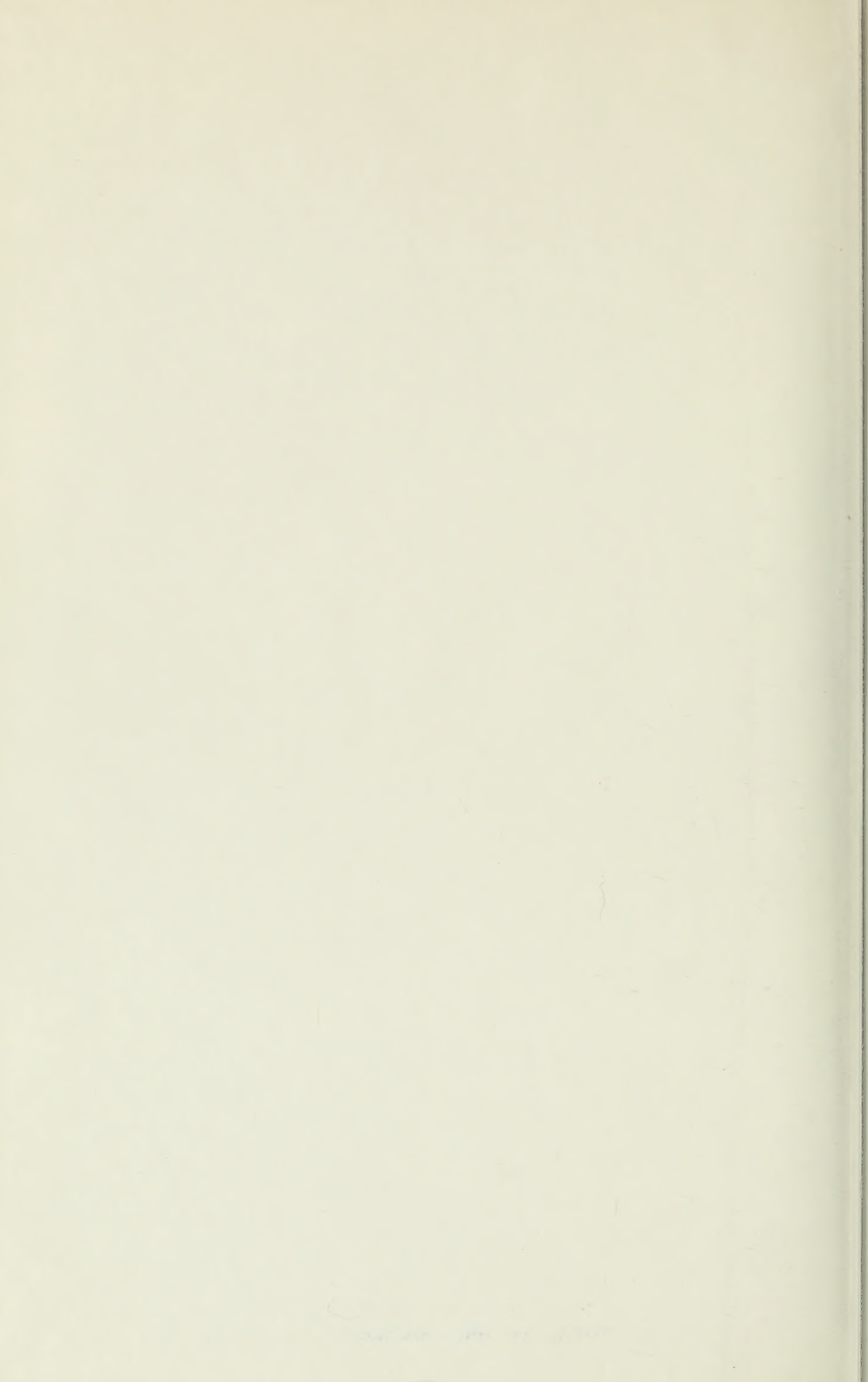
TSUDA, MATSUNAE

1942. Japanische Trichopteren, 1. Systematik. Mem. Coll. Sci. Kyoto Univ., ser. B, vol. 17, no. 1, art. 6, pp. 239-339, 77 figs.

WIGGINS, GLENN B.

1956. A revision of the North American caddisfly genus *Banksiola* (Trichoptera: Phryganeidae). Contr. Roy. Ontario Mus., Div. Zool. and Palaeont., no. 43, pp. 1-12, 10 figs.





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